

# CLAIMS

1.

A catalyst for purifying exhaust gas comprising iridium and sulfur as catalyst active substances.

2.

The catalyst for purifying exhaust gas as defined in claim 1, wherein iridium is deposited on a support containing sulfur.

3.

The catalyst for purifying exhaust gas as defined in claim 1, wherein sulfur is provided as a sulfate.

4.

A catalyst for purifying exhaust gas comprising:  
~~a fire-resistant inorganic compound having at least one~~  
element selected from the group consisting of platinum, palladium and rhodium deposited thereon; and  
a metallic sulfate having iridium deposited thereon.

5.

The catalyst for purifying exhaust gas as defined in claim 4, wherein: among the catalyst ingredients of the catalyst for purifying exhaust gas, the fire-resistant inorganic compound having at least one element selected from the group consisting of platinum, palladium and rhodium deposited thereon is provided as a lower layer and the metallic sulfate having iridium deposited thereon as an

upper layer is placed on the lower layer.

6.

The catalyst for purifying exhaust gas as defined in claim 4, wherein among the catalyst ingredients of the catalyst for purifying exhaust gas, the metallic sulfate having iridium deposited thereon is placed on an upstream side of an exhaust gas flow, while the fire-resistant inorganic compound having at least one element selected from the group consisting of platinum, palladium and rhodium deposited thereon is placed on a downstream side thereof.

7.

The catalyst for purifying exhaust gas as defined in claim 4, wherein: the catalyst for purifying exhaust gas is divided into a plurality of parts, and those parts containing the metallic sulfate having iridium deposited thereon are placed at a preceding stage, while those parts containing the fire-resistant inorganic compound having at least one element selected from the group consisting of platinum, palladium and rhodium deposited thereon are placed at a succeeding stage.

8.

The catalyst for purifying exhaust gas as defined in claim 4, wherein the metallic sulfate is a sulfate of an alkaline earth metal.

9.

The catalyst for purifying exhaust gas as defined in claim 4, wherein onto the metallic sulfate having iridium deposited thereon ~~is~~ further deposited at least one element selected from the group consisting of tin, gallium, germanium and silicon.

10.

A catalyst for purifying exhaust gas comprising:  
iridium and sulfur; and

at least one element selected from the group consisting of calcium, strontium and barium, as catalyst active substances.

11.

The catalyst for purifying exhaust gas as defined in claim 10, wherein iridium forms a complex oxide with said at least one element selected from the group of said elements.

12.

The catalyst for purifying exhaust gas as defined in claim 10, wherein iridium is deposited on a support containing sulfur.

13.

The catalyst for purifying exhaust gas as defined in claim 10, further comprising a fire-resistant inorganic compound.

14.

A catalyst for purifying exhaust gas comprising

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iridium, a rare-earth metal and sulfur.

15.

The catalyst for purifying exhaust gas as defined in claim 14, wherein the rare-earth metal is contained as an oxide containing at least one element selected from the group consisting of cerium, lanthanum, yttrium, neodymium and praseodymium.

16.

The catalyst for purifying exhaust gas as defined in claim 14, wherein the rare-earth metal is contained as a composite oxide containing at least one element selected from the group consisting of cerium, lanthanum, yttrium, neodymium and praseodymium and at least one element selected from the group consisting of manganese, iron, cobalt, nickel, copper and zinc.

17.

The catalyst for purifying exhaust gas as defined in claim 14, further comprising at least one element selected from the group consisting of tin, gallium, germanium and silicon.

18.

An exhaust-gas purifying process comprising the steps of:

preparing any one of the catalysts for purifying exhaust gas according to claims 1 to 17;

setting the exhaust-gas temperature in the range of 200°C to 700°C at the inlet of the catalyst for purifying exhaust gas; and

allowing exhaust gas from an internal combustion engine to pass through the catalyst for purifying exhaust gas so as to reduce nitrogen oxides in the exhaust gas.

19.

An exhaust-gas purifying process comprising the steps of:

preparing any one of the catalysts for purifying exhaust gas according to claims 4 to 9;

setting the exhaust-gas temperature in the range of 200°C to 700°C at the inlet of the catalyst for purifying exhaust gas; and

allowing exhaust gas from an internal combustion engine to pass through the catalyst for purifying exhaust gas so as to reduce hydrocarbons, carbon monoxide and nitrogen oxides in the exhaust gas from the internal combustion engine.